

Success in Learning

For learning to be successful, it needs to be

- focused
- meaningful, purposeful and utilised
 - linked to other knowledge
 - reflected upon
 - transferable
 - sustained over time

SOLO

What?

Why?

When?

How?

Making A Difference In Teaching & Learning

Heather Russell & Barbara Wenn

Deanwell School

X-Roads ICTPD Cluster

heather.russell@deanwell.school.nz

bwenn19@gmail.com

<http://xroads.wikispaces.com>

Where are you?

KNOWLEDGE OF SOLO TAXONOMY

<p>I know that:</p> <p>I have no understanding of the SOLO Taxonomy.</p>	<p>I know that:</p> <ul style="list-style-type: none">•I have limited understanding of the SOLO Taxonomy.•I have limited understanding of the uses of the SOLO Taxonomy.•The SOLO Taxonomy is a tool for showing stages of learning.•I am not using the SOLO Taxonomy in my teaching/learning programmes.•The SOLO Taxonomy is based on observed evidence.	<p>I know that:</p> <ul style="list-style-type: none">•I am using the SOLO Taxonomy in my planning.•I am creating rubrics for learning with my students based on the SOLO Taxonomy.•I am using the SOLO Taxonomy with students to enable them to formatively assess themselves.•I am also using the SOLO Taxonomy for students' Summative assessment.	<p>I know that:</p> <ul style="list-style-type: none">•I am using the SOLO Taxonomy with students enabling them to articulate their level of learning and "where to next?"•I am using the SOLO Taxonomy to provide feedback to students and parents.•I am using the SOLO Taxonomy for students to see their progressions/connections in learning.	<p>I know that:</p> <ul style="list-style-type: none">•I am using the SOLO Taxonomy with students to identify the links for integrated learning.•I am using the SOLO Taxonomy to create targets/expectations across curriculum areas.•I am using the SOLO Taxonomies to communicate student achievement to other agencies.•I am using information gathered from SOLO Taxonomies to organize content into a coherent whole.
--	--	--	---	---

How will I get to the next step in my learning?

"SOLO"

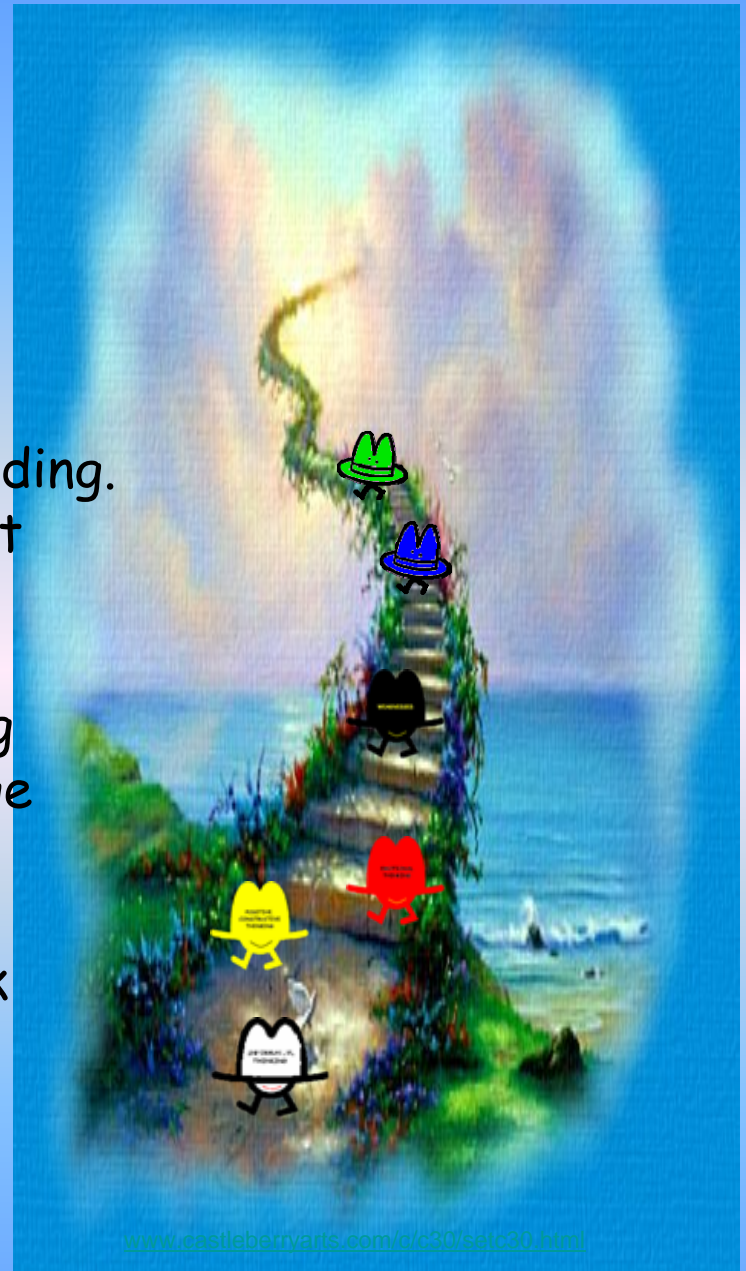
Structure of Observed Learning Outcomes

It was developed by Biggs and Collis (1982).
Biggs describes SOLO as “a framework for understanding”. (1999, p.37)



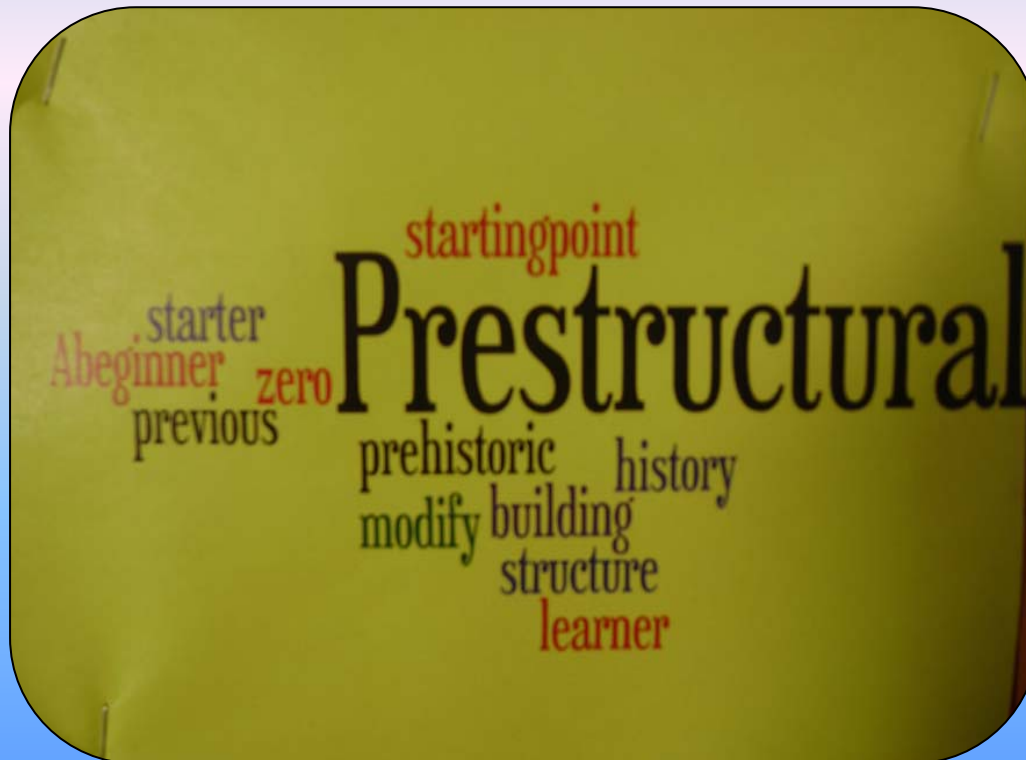
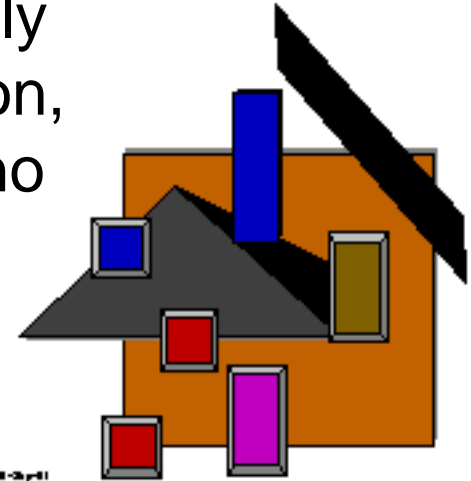
Why use SOLO?

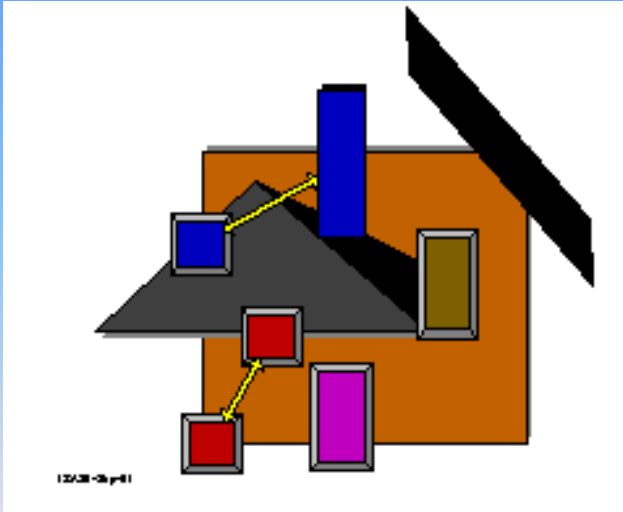
- SOLO is a true hierarchic taxonomy - a scaffold for increasing quantity and quality of thought
- SOLO identifies five stages of understanding. Each stage embraces the previous level but adds more depth / intensity
- SOLO is a powerful tool in differentiating curriculum and providing cognitive challenge for learners
- SOLO allows teachers and learners to ask deeper questions
- SOLO is a powerful metacognitive tool
- SOLO + BLOOMS + Thinking Hats = powerful learning



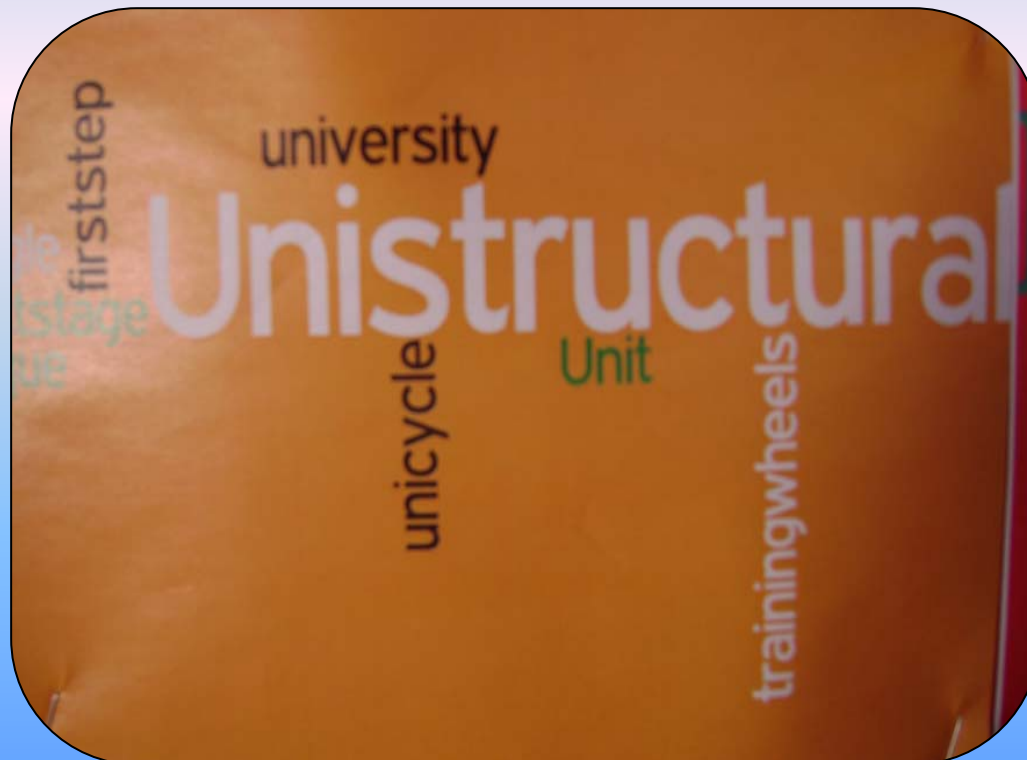
SOLO Taxonomy

- 1. Prestructural: here students are simply acquiring bits of unconnected information, which have no organization and make no sense.

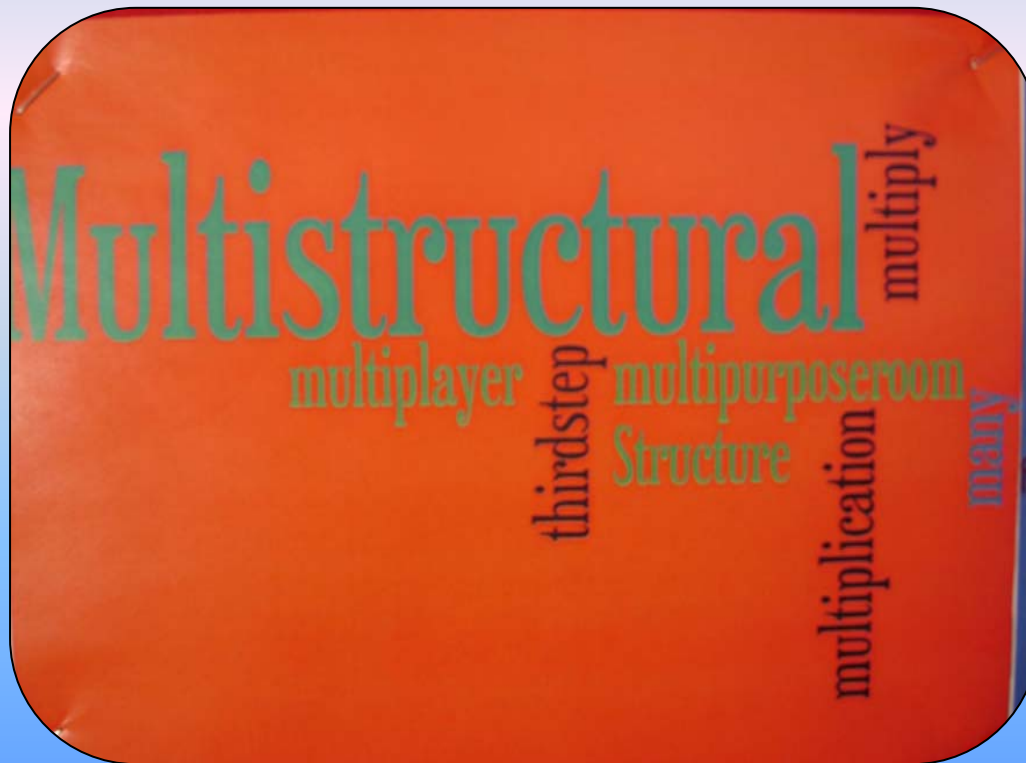
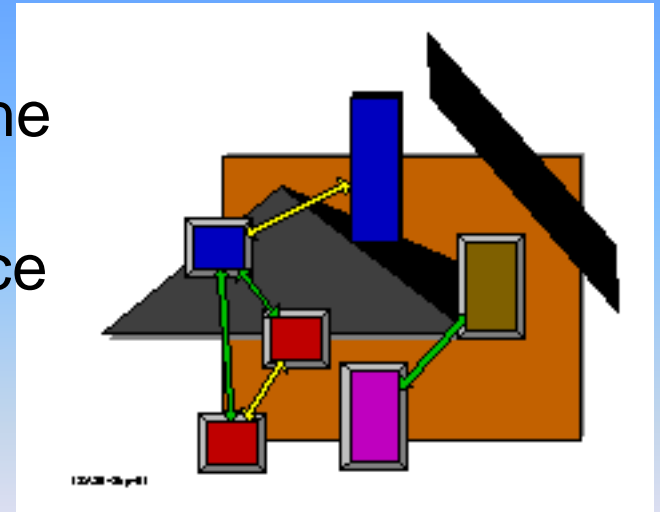




2. Unistrial: simple and obvious connections are made, but their significance is not grasped.



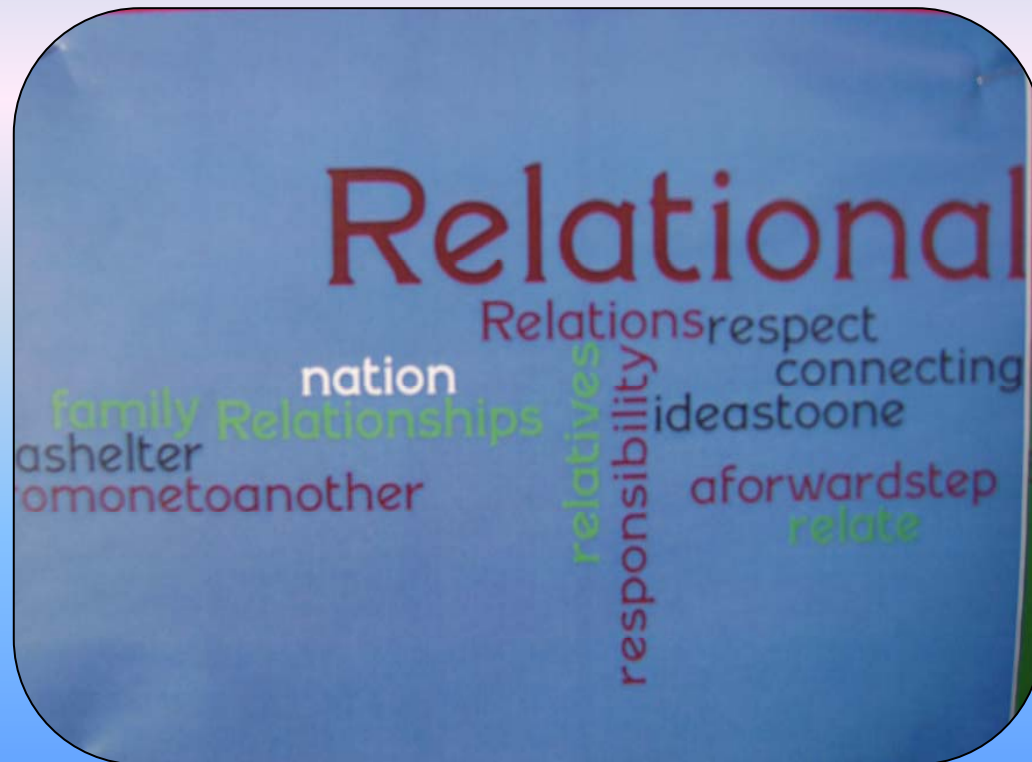
3. Multistructural: a number of connections may be made, but the meta-connections between them are missed, as is their significance for the whole.





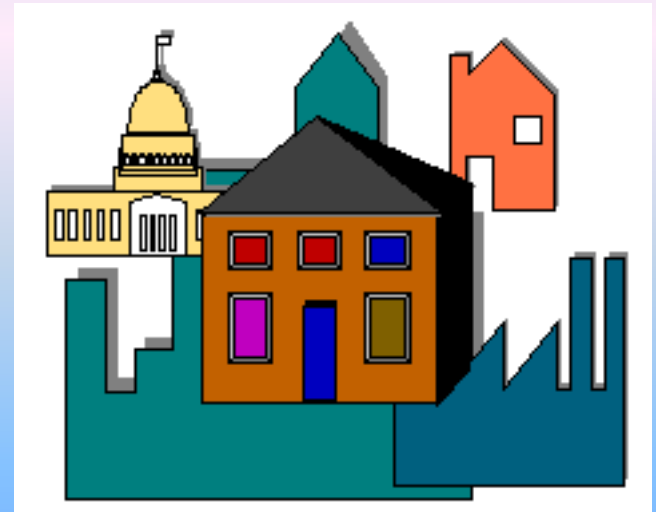
13/08/2011

4. Relational level: the student is now able to appreciate the significance of the parts in relation to the whole.





5. Extended Abstract: the student is making connections not only within the given subject area, but also beyond it, able to generalize and transfer the principles and ideas underlying the specific instance.



✓ claimed to be applicable to any area of learning

How are we learning with SOLO?

- ☺ **CONCEPT / CONTEXT / CURRICULUM PLANNING**
- ☺ **TEACHING**
- ☺ **LEARNING**
- ☺ **ASSESSING FOR NEXT STEPS IN LEARNING**
- ☺ **EMPOWERING STUDENTS IN THEIR LEARNING
AND BEHAVIOUR**

SOLO Taxonomy

Structure of Observed Learning Outcomes



Define
Identify

Define
Describe
List
Identify
Name
Label

Sequence
Compare
Contrast
Classify
Explain
Analyse
Relate
Apply

Evaluate
Theorise
Generalise
Predict
Create
Imagine
Hypothesise
Reflect

Prestructural

Unistructural

Multistructural

Relational

Extended Abstract

startingpoint
Prestructural
starter
beginner
zero
previous
prehistory
history
modify
building
structure
learner

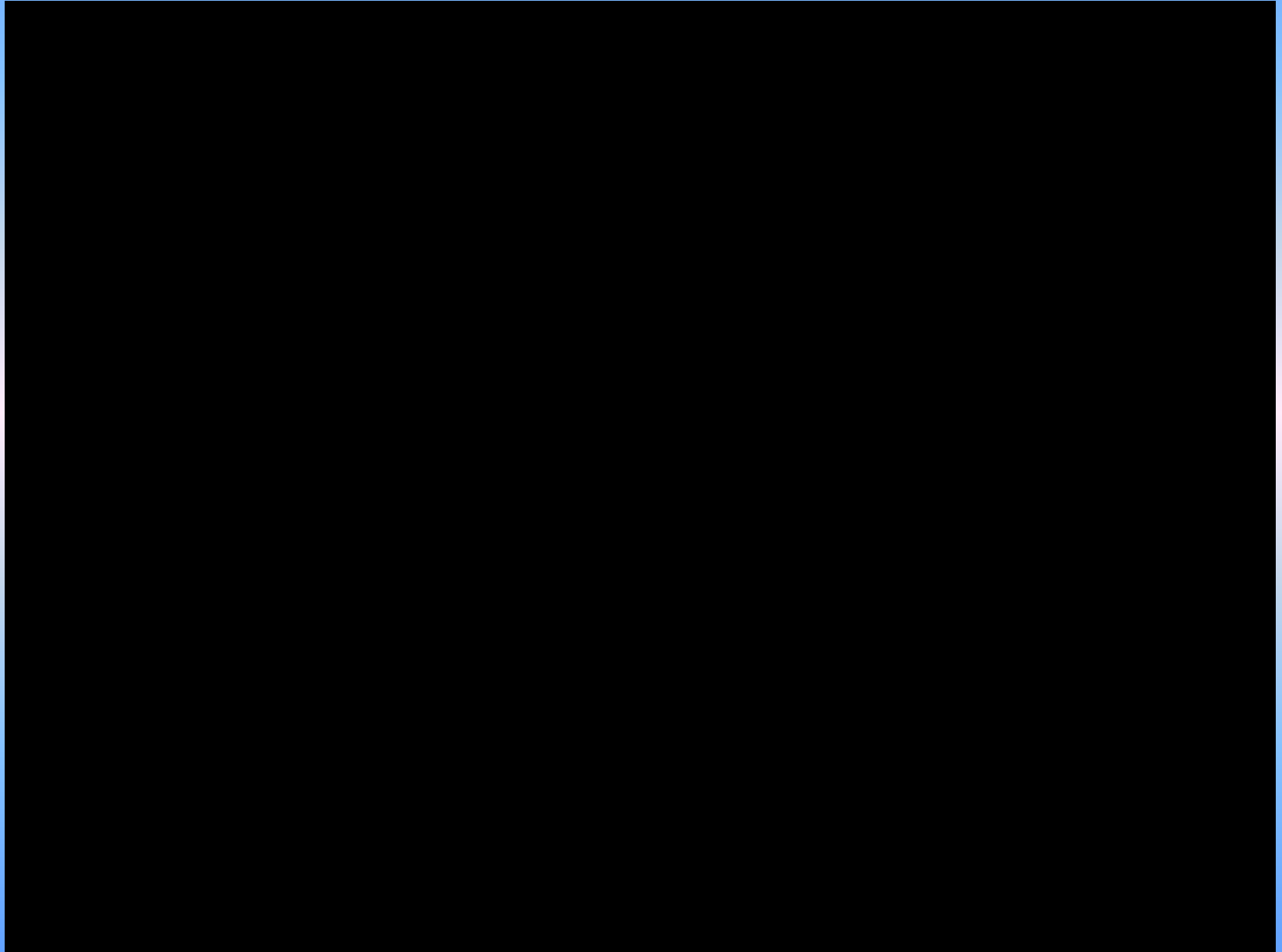
university
Unistructural
unit
unicycle
unicycle

Multistructural
multiply
multiplication
thirdstep
multiplication

Relational
Relations
respect
connecting
idea
stone
responsibility
forwardstep
relation

Extended Abstract
extend
thinking
sample
general
idea
step
relation
idea
step
relation

Understanding / Making & Using SOLO



SOLO Taxonomy

Self Assessing:

➤ Where are you?

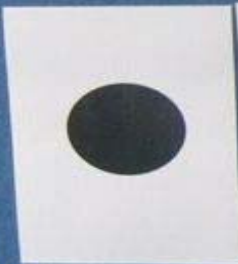


➤ What do you need to do to move forward?

SOLO Taxonomy

Structure of Observed Learning Outcome

trustworthy, responsible
ROLE MODELS
We have fantastic manners
We treat others how we
would like to be treated
We set a HIGH STANDARD
for our school



- looking instead of listening
- talking
- day dreaming
- doing everything off task
- disrupting others learning
- using own ideas



- sometimes paying attention
- repeating questions
- making reminders after instructions are given



- learning from mistakes - changing behaviour
- knowing when help is needed



Prestructural

- I am at school.
- I am in the classroom.

Unistructural

- I know others have the right to learn and I am working on remembering this.
- I am working on skills to keep on task.
- I am working on giving others their chance to have their say without interruption.
- I am working on speaking clearly.
- I am working on listening constructively so I know what I am supposed to be doing.
- I know I should work quietly and co-operatively.
- I can ask for help.

Multistructural

- I know how to behave correctly and I do most of the time.
- I know how to use good manners, and I use them often.
- I know how to behave in a trustworthy manner and I do this often.
- I think before I act.
- I have everything ready for the school day.
- I will follow instructions without reminders.
- I will work at the task the teacher has given me.

Relational

- I let others express their ideas without ridicule.
- I look at and listen to those who are speaking to me.
- I am on task.
- I ask relevant and thoughtful questions.
- When I know how to do something I get on and do it without fuss or stuffing.
- I respect others right to learn.
- I will follow instructions silently and sensibly.
- I speak politely and kindly to others, and encourage them to do the same.

Extended Abstract

- I know what I am supposed to be doing and I get on and do it, and I am able to help others do the same.
- If someone is doing something wrong I am able to help them get back on task.
- If I do not understand instructions which I have either listened to or read carefully, I will get help.
- I have excellent manners in all situations.
- I model correct behaviour.
- When I have finished a task I choose to work on something else sensibly.

We are learning to be responsible learners.

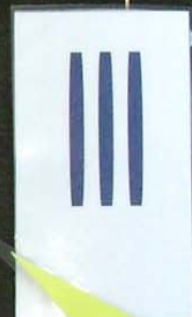
I need help to
write a sentence by
myself

I am able to write one
sentence by myself
with a capital letter
and a full stop.

I am able to make my
writing interesting and
use capitals and
full stops correctly



I am able to write
many sentences with
capital letters and a
full stop.



I am able to write
more than one sentence
with capitals and full
stops.






We are learning to use capitals and fullstop.


are you on the chart?

 I need help to write a sentence by myself. 

 I am able to write one sentence by myself with a capital and fullstop. 

 I am able to write more than one sentence with a capital and fullstop. 

 I am able to write many sentences with capital letters and a fullstop.

 I am able to use capital and fullstops correctly.

Come

and

write

a letter

a retell


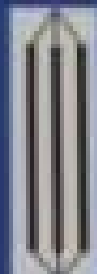

a recount

22 AUG 2008







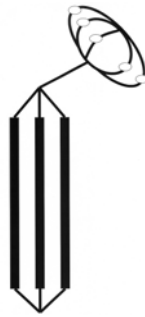
SOLO

Al's plan for becoming independent readers.

 <p>Prestructural</p>	<p>Liam Joymee R Brooklyn Eden Sean Rickhan Wrenu Thomas Carlo</p> <p>Unstructural ←</p>	<p>Blake Sophie Joymee W Lilee Libby Anantika Julianne</p> <p>Multistructural</p>	 <p>David William</p> <p>Relational</p>	 <p>Extended Abstract</p>
<p>I sometimes keep my eyes on the words.</p> <p>I do not listen to myself read.</p> <p>I cannot remember the story.</p>	<p>I look at the words when I am reading.</p> <p>I listen to myself read and stop when it doesn't make sense and think, "What can I do?"</p> <p>I can use the pictures to retell the story in my own words.</p>	<p>I think about what I know before I read.</p> <p>I listen to myself read, notice when it doesn't sound right, make sense of the words do not look right.</p> <p>I can remember the story.</p> <p>My reading sounds like talking.</p> <p>I read for fun. I read stories and for information.</p>	<p>I think about what I know before I read and use these ideas to make predictions about the story.</p> <p>I am able to self monitor as I read and self correct any errors I make by:</p> <ul style="list-style-type: none"> • Searching through words <p>I can retell the story in a sequenced form.</p> <p>I notice that things are the same and different.</p>	<p>I explain my thinking when I answer questions about my reading.</p> <p>I can link ideas into other experiences.</p> <p>I am learning to 'Read On' when self monitoring.</p> <p>I am learning to summarize the main parts of the story.</p> <p>I can silent read.</p> <p>At the library I choose books about study topics.</p>

SOLO

Liam's plan to take part in Golden Time

				
Prestructural	Unistructural	Multistructural	Relational	Extended Abstract
<p>I fiddle with anything close to me. I forget to sit in my Mat time place. The teacher has to get my book out. I need the teachers pen/pencil. I need to finish my work at a break time. I lose 5 minutes of Golden Time</p>	<p>I need an extra instruction after the class has been given an instruction. With support from the teacher or a teacher's aide I can complete my work. I can underline using a ruler. When I get a warning card I quickly make the right choice.</p>	<p>At mat time I sit with my arms folded in my place at the front. Nic, Carter and Kritesh are my mat buddies When I am sitting at my desk I have my arms folded. I will move objects I might fiddle with. I can start class work without support. I can paste task sheets into my books. I can work with a partner.</p>	<p>I follow teacher directions the first time. I can use a contract to earn back Golden Time I can choose where I sit at Literature and Silent Reading Time. I complete my class work. I care for my books. My desk is tidy. I can work in a team.</p>	<p>I get ALL of Golden Time I strive for Excellence in all I do. I can choose where I sit at 'mat' time. I support others in the class.</p>

Somehow in our solar system
is the **Earth**.
It's a small, blue planet.
Can you find it?

Picture Talk

Mercury is the closest planet to the Sun. If you stood on the side of Mercury facing the Sun, you would be baked alive. If you stood on its dark side, you would freeze to death.

Venus is even hotter than Mercury and its air is so heavy it would crush you.

Earth is the only planet on which living things are known to exist. Most of the planet is covered by oceans.

Mars is a rocky, dusty planet where the temperature is mostly below freezing. This planet has the biggest volcano in the solar system and valleys that are deeper than any on Earth.

Jupiter is the largest planet. You could fit the Earth inside it one thousand three hundred times. Jupiter seems to be made of a hot liquid covered by stormy clouds.

Saturn is also a giant planet, though the liquids it is made of are lighter than water. The rings around Saturn are made of small rocks, ice and dust.






Uranus and Neptune both seem to have rocky centres surrounded by ice, liquids and gases. Uranus has five narrow rings.

Pluto is a tiny rocky planet about one-fifth the size of the Earth. If you stood on Pluto the Sun would look no brighter than the other stars.

Are there any other planets? Some scientists believe there may be a tenth planet beyond Pluto, but this has not yet been proved. In 1997 scientists discovered an object which might be a giant planet near a star called Epsilon Eridani.

SOLO

Liam's plan to take part in Golden Time

				
Prestructural	Unistructural	Multistructural	Relational	Extended Abstract
I fiddle with anything close to me. I forget to sit in my Mat time place. The teacher has to get my book out. I need the teachers pen/pencil. I need to finish my work at a break time. I lose 5 minutes of Golden Time.	I need an extra instruction after the class has been given an instruction. With support from the teacher or a teacher's aide I can complete my work. I can underline using a ruler. When I get a warning card I quickly make the right choice.	At mat time I sit with my area folded in my place at the front. The center and stretch are my mat buddies. When I am sitting at my desk I have my area folded. I will move objects I might fiddle with. I can start class work without support. I can paste task sheets into my book. I can work with a partner.	I follow teacher directions the first time. I can use a contract to earn back Golden Time. I can choose where I sit at Literature and Silent Reading Time. I complete my class work. I care for my books. My desk is tidy. I can work in a team.	I get ALL of Golden Time. I strive for Excellence in all I do. I can choose where I sit at mat time. I support others in the class.

Pluto

Neptune

Uranus

Saturn

Jupiter

Mars






Earth

Venus

Mercury

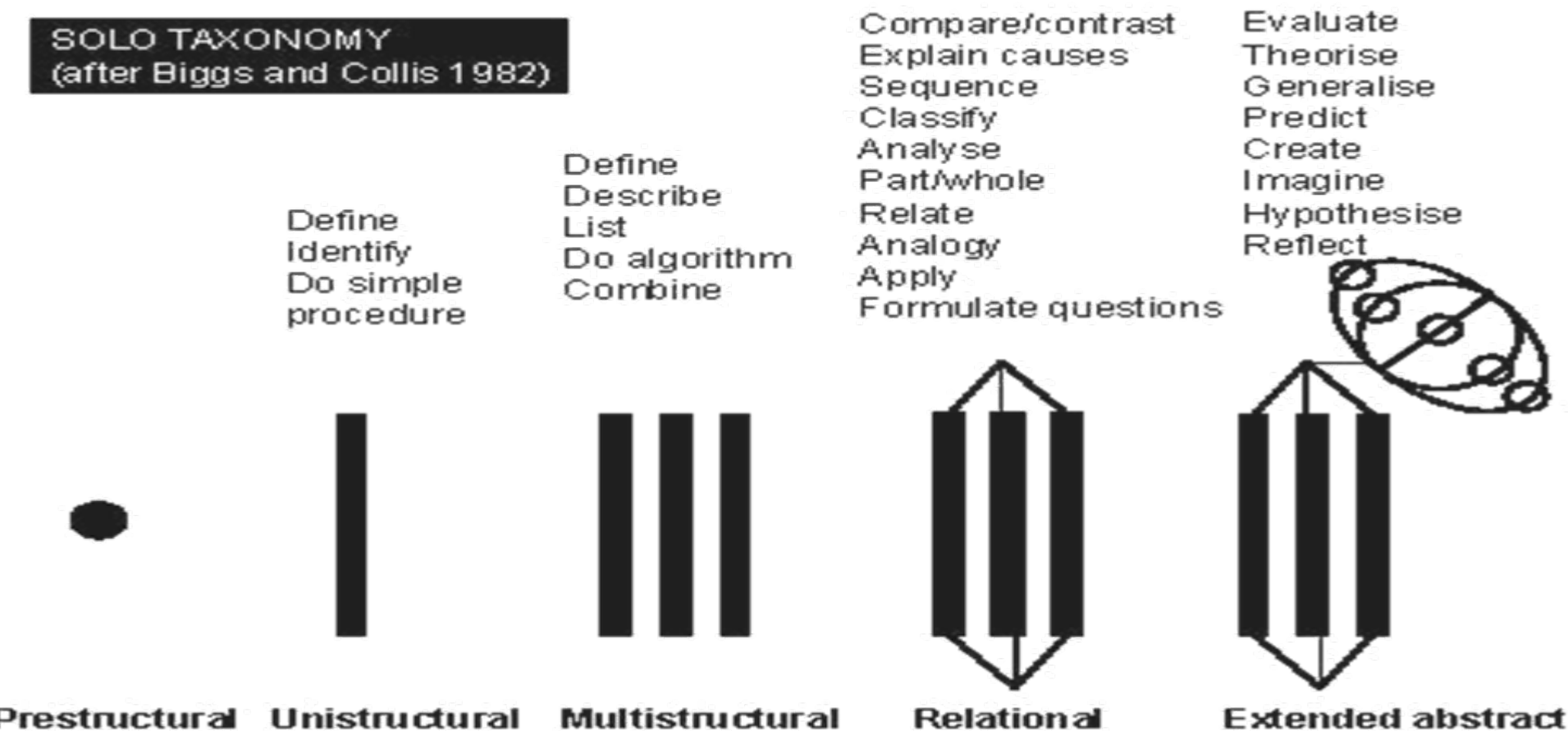
Sun



<h1 style="text-align: center;">SOLO</h1> <p style="text-align: center;">WALT creates a pastel image, inspired by nature</p>					
					
<p><i>Prepared form</i></p>	<p><i>Unprepared form</i></p>	<p><i>Multi-use form</i></p>	<p><i>Reprepared</i></p>	<p><i>Extended Abstract</i></p>	
<p><i>I need help to make my work.</i></p> <p><i>Use the palette correctly.</i></p> <p><i>I'm the judge.</i></p> <p><i>Complete my work.</i></p> <p><i>Work up my work sheet at the end of a session.</i></p>	<p><i>I understand.</i></p> <p><i>Make my work.</i></p> <p><i>Learn to look across people.</i></p> <p><i>From back side the person with you.</i></p> <p><i>Use contrasting colors.</i></p> <p><i>Repeat images.</i></p> <p><i>Make some images some of the same.</i></p> <p><i>Make others of the same.</i></p> <p><i>Use a variety of pastel colors.</i></p> <p><i>Work up my work sheet.</i></p>	<p><i>I prepare.</i></p> <p><i>Apply the techniques I learn.</i></p> <p><i>Use the palette to make my work.</i></p> <p><i>Use the palette in a creative way.</i></p> <p><i>Be creative.</i></p> <p><i>Make my work.</i></p> <p><i>Make a second set to the first.</i></p> <p><i>Make a 3rd set of the same.</i></p> <p><i>Make about 10, without making.</i></p> <p><i>Make about 10, with making.</i></p> <p><i>Make about 10, with making.</i></p>	<p><i>I am thinking what I am doing.</i></p> <p><i>Use the palette to make my work.</i></p> <p><i>Use the palette in a creative way.</i></p> <p><i>Be creative.</i></p> <p><i>Make my work.</i></p> <p><i>Make a second set to the first.</i></p> <p><i>Make a 3rd set of the same.</i></p> <p><i>Make about 10, without making.</i></p> <p><i>Make about 10, with making.</i></p> <p><i>Make about 10, with making.</i></p>	<p><i>Extended Abstract</i></p> <p><i>Make my work.</i></p> <p><i>Use the palette to make my work.</i></p> <p><i>Use the palette in a creative way.</i></p> <p><i>Be creative.</i></p> <p><i>Make my work.</i></p> <p><i>Make a second set to the first.</i></p> <p><i>Make a 3rd set of the same.</i></p> <p><i>Make about 10, without making.</i></p> <p><i>Make about 10, with making.</i></p> <p><i>Make about 10, with making.</i></p>	





SOLO TAXONOMY (after Biggs and Collis 1982)



<i>Needs Teacher assistance</i>	<i>Definition identifies one relevant idea</i>	<i>Definition identifies several relevant ideas</i>	<i>Definition identifies several relevant ideas and links these to the whole</i>	<i>Definition identifies several relevant ideas and links these to the whole. Taken into another context.</i>
•Here students are simply acquiring bits of unconnected information, which have no organisation and make no sense.	•Simple and obvious connections are made, but their significance is not grasped.	•A number of connections may be made, but the meta-connections between them are missed, as is their significance for the whole.	•The learner is now able to appreciate the significance of the parts in relation to the whole.	•The learner is making connections not only within the given subject area, but also beyond it, able to generalise and transfer the principles and ideas underlying the specific instance.

Applying SOLO Taxonomy

• Context:

• Prestructural	I Unistructural	III Multistructural	 Relational	 Extended Abstract
Needs Teacher assistance	Definition identifies one relevant idea	Definition identifies several relevant ideas	Definition identifies several relevant ideas and links these to the whole	Definition identifies several relevant ideas and links these to the whole. Taken into another context.

Thinking Skills Framework

Bloom Level	Verbs	Starters	Tools
 Design <small>Using the Thomas Edison Award for Design, planning, designing, planning</small>	Create Imagine Invent Plan Produce Propose Reconstruct Synthesise	Design an experiment... for... Produce a list of... for... Develop a story... for... Identify... as... Develop a plan... for... Develop a plan... for... Develop a plan... for...	L&PCH MAG Problem-Solution SCAMP Word Association T-Chart
 Evaluate <small>Using the Thomas Edison Award for Design, planning, designing, planning</small>	Agree Assess Critique Decide Judge Justify Prioritise Recommend	Which of the two... would be better for... Choose and justify a... way for... Justify the decision of... Evaluate the effectiveness of... Select which is the best option... Rank the following... Select the... Select the...	Decision-Making Matrix Extent-Spectrum Rating Continuum Judge-Jury PCE Problem-Solution Tournament Prioritiser V-Chart
 Analyse <small>Using the Thomas Edison Award for Design, planning, designing, planning</small>	Argue (about) Categorise Critique Debate Differentiate Discuss Distinguish Identify	Free at least 5 examples... Discuss the similarities and differences of... Compare and contrast... Investigate all the factors that could influence... Summarise the reasons for... Select the... Conduct research on the... Use the... Use the...	Decision-Making Matrix Double-Subtle Map Issue-Proposal KWC & KWH PCE Problem-Solution DWOT Analysis T-Charts & V-Charts
 Apply <small>Using the Thomas Edison Award for Design, planning, designing, planning</small>	Calculate Compare Complete Construct Demonstrate Illustrate Operate Solve	Applying previously learned knowledge... Using your knowledge of... Write a letter to the... Classify the following... Write a... Construct a... Interview a group of people...	Human Continuum Flow Charts Story Maps Silent Card Shuffle PSE
 Understand <small>Using the Thomas Edison Award for Design, planning, designing, planning</small>	Classify Compare Discuss Imagine Outline Recognise Summarise Translate	Explain how... Describe the... Paraphrase in your own words... Give reasons for... Using words, pictures and icons... Use the... Research... State...	Concept Map Cause-Effect Map Double-Subtle Map Mnemonic PCE Silent Card Shuffle
 Remember <small>Using the Thomas Edison Award for Design, planning, designing, planning</small>	Define Find Label Match Memorise Quote Repeat State	Describe what happened... List all the... Write... List the... Write... Make up a... Recall... Recall...	Jot It Acronyms KWL Mnemonics Flash Cards Rhymes & Songs Silent Card Shuffle Pairs and RAS Map

SOLO - Diary Writing

Extended Abstract

- Improve
- Invent a new ending
- Challenging the reader - intrigue
- Create a new situation based on present idea
- Linking ideas together
- Comparing / contrasting
- Organising ideas into sequence
- Analyse the content - editing
- Making decisions - what to do next
- Remembering lots of details
- Define information
- Explaining to build a picture
- List the basic information

Prestructural Unistructural Multistructural Relational Extended Abstract

Need help

One word

Just about

illus

with a

read a

ring

over

who?

SOLO - Designing a Worm Farm: *Where are you now? What do you need to do to move to the next step?*



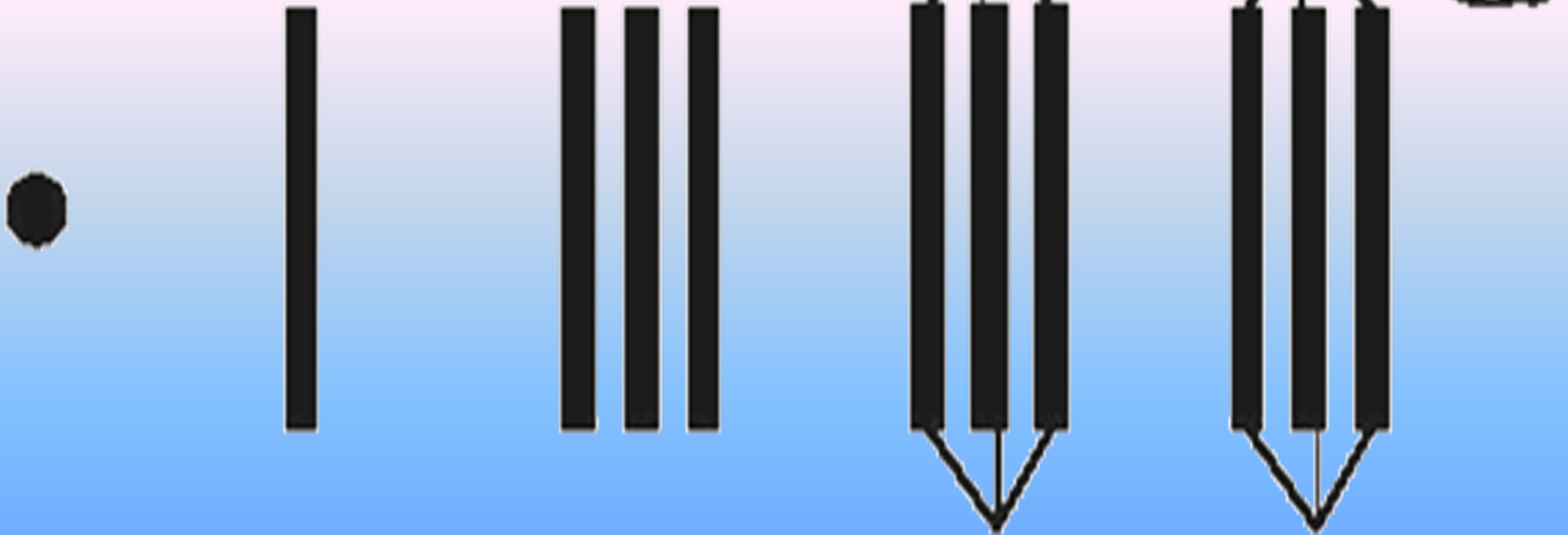
• Prestructural	I Unistructural	III Multistructural	⓪ Relational	Ⓜ Extended Abstract
Needs Teacher assistance	Definition identifies one relevant idea	Definition identifies several relevant ideas	Definition identifies several relevant ideas and links these to the whole	Definition identifies several relevant ideas and links these to the whole. Taken into another context.
<p>Asking what is a worm farm?</p> <p>I have no understanding of why we need a worm farm</p>	<p>I know that having a worm farm at school would be good for using our organic rubbish in a sustainable manner</p>	<p>I know we can use a worm farm for</p> <ul style="list-style-type: none"> * composting organic rubbish * getting vermicast * getting worm pee <p>And using vermicast and worm pee for improving the soil in our gardens</p> <p>I can sketch a basic worm farm</p> <p>I can label the parts on my worm farm sketch</p>	<p>I have designed a worm farm that we can</p> <ul style="list-style-type: none"> * collect vermicast from * collect worm pee from <p>I have identified all the materials I will need to build my worm farm</p> <p>I am able to justify all the parts in my design</p> <p>I am able to identify possible problems in my design</p>	<p>I can gather the appropriate materials</p> <p>I can build my worm farm using my design</p> <p>I can identify the problems and seek to solve them using experts</p> <p>I can adapt my design to try different solutions, using trial and error</p> <p>I am able to justify my design and suggest possible improvements</p> <p>I am able to design an action plan for looking after the worm farm.</p>

SOLO Taxonomy

It describes level of increasing complexity in a student's understanding of a subject, through five stages, and it is claimed to be applicable to any subject area.

Self Assessing:

➤ Where are you?



➤ What do you need to do to move forward?

SOLO

I am learning to ask questions.



Prestructural



Unistructural



Multistructural



Relational



Extended Abstract

- I don't know how to ask a question.

I can:

- Ask a question on the topic.

I can:

- Ask many questions on the topic.

I can:






- Ask different types of questions relevant to the topic. (Why and How questions)

I can:

- Take information I already know to create new wondering questions. (What if...)
- Reflect on my questions.

Reece SOLO

Water Cycle diagram showing where the water in streams and rivers comes from.

Prestructural	Unistructural	Multistructural	Relational	Extended Abstract
				
I cannot draw a water cycle diagram.	I can draw a diagram that identifies one stage of the water cycle.	I can draw a diagram that identifies many stages of the water cycle with symbols, labels and arrows.	I can create a diagram that shows how all the stages of the water cycle are related using relevant symbols, labels and arrows.	I can create a diagram that shows how all the stages of the water cycle are related using relevant symbols, labels and arrows. It also shows where the water in streams and rivers comes from.

What do I need to do to move to the next step?
To move to the next step in my learning for my water cycle diagram, I need to

I draw water. Vapour going up as little tiny droplets.



The Water Cycle

The water evaporates into air. It turns into raindrops in the clouds. The raindrops fall out of the clouds and they fall down into the sea, the lakes, the streams and the rivers. They also fall on the land. Then the rainwater evaporates up into the air again.

Reece

ASSESSING FOR NEXT STEPS IN LEARNING



*ERO student
question-What
could the school do
to improve student
learning?*

Reply from Tia

“Teachers could give their class a SOLO taxonomy rubric and then they will be able to highlight where you are. When you’ve done it once you can always return to it and highlight your improvement.”

1.7.09

ERO Report: August 2009

Areas of good performance

Thinking Skills:

As a result of ongoing professional development, teachers use a range of appropriate tools and strategies that promote higher order thinking skills. The use of these tools is progressively enhancing students' ability to set individual learning goals and self assess. In addition, students are able to identify their next step in learning within a well-understood learning taxonomy. In many classrooms useful displays of student work not only make student learning visible but also indicate what the student has to do next to make progress with their learning. The inclusion of thinking skills within classroom programmes is contributing to the development of students as independent learners.

CONCEPT / CONTEXT / CURRICULUM PLANNING

BIG CONCEPT:		CONTEXTS:		
KEY UNDERSTANDINGS:				
ESSENTIAL/DRIVING/BIG QUESTION:				
KEY COMPETENCIES: Thinking: Be more intellectually curious/take more risks with my learning/ actively seek new knowledge/use critical, creative, metacognitive thinking strategies/make decisions/reflect on own thinking/ask questions/challenge perceptions and assumptions	Relating to Others: Interact with a diverse group of people/interact in a variety of context/be an active listener/ recognize different viewpoints/ negotiate and share ideas/be more open to new learning/co-operate in team situations	Participating and Contributing: Be aware of local, national, global communities/understand the purpose of these communities/respond appropriately in a group situation/ make connections with others/take on a range of roles/display an awareness of local/national/global issues/be actively involved in community issues/ understand the importance of balancing rights, roles and responsibilities/make decisions/ contribute to social, physical and economic environments	Managing Self Establish personal goals/plan my work/set high standards/act appropriately in a range of settings/become aware of my actions and words on others/set high self expectations/develop a range of strategies to become a successful learner/make well informed choice	Using Language, Symbols & Text: Interpret and use word, number, images, movement, metaphor and technologies in a range of context/understand how people respond to communication/use ICT confidently
ACHIEVEMENT OBJECTIVES: Level:				
<u>Curriculum Area:</u>	<u>Curriculum Area</u>	<u>Curriculum Area</u>	<u>Curriculum Area</u>	
<u>Brainstorm Ideas:</u>				
Where to next? Rubrics/Reflections/Assessment:				
SOLO Rubric -				

LEARNING INTENTIONS: ACTIVITIES AND EXPERIENCES

☺ To assist with this section, use the chart: "Plan using Solo.Blooms with Thinking and Questioning and ICTs" also available on wiki

I Unistructural
III Multistructural

Relational

Extended Abstract

Bringing in ideas:

(Identify/Label/List/Define/Describe/Retell/Recall/Recite)

Planning must include both:

- experiences at the learners' current level of understanding
- experiences above current to ensure we are aware of the need to provide experiences to raise their levels of knowledge and understanding

Linking ideas: (Sequence/Classify/Compare Contrast/Cause Effect/Analysis Part whole/Explain/Analogy/Question)

•

Putting linked ideas in another context:

(Predict/Hypothesise/Generalise/Imagine/Reflect/Evaluate/Create)

•

Thinking interventions that target bringing in ideas:

•

Thinking interventions that target linking ideas:

Thinking interventions that target putting linked ideas in another context:

•

ICT to enhance conditions for bringing in ideas:

•






ICT to enhance conditions for linking ideas:



•

ICT to enhance conditions for putting linked ideas in another context:

•

Plan Using SOLO/Bloom's Taxonomies with Questioning, Thinking and ICTs

SOLO	BLOOM'S	Learning Cues	Learning Experiences	Thinking Tools/Graphic Organisers/Hats/ICTs
 Unistructural	Knowledge (Questions that ask for the recall of facts)	<ul style="list-style-type: none"> • Observation and recall of facts • Knowledge of dates, events, places • Knowledge of major ideas • Mastery of subject matter • List details • Remember information 	list, define, tell, describe, identify, show, label, collect, examine, tabulate, quote, name, <u>who?</u> <u>when?</u> <u>where?</u> <u>what?</u>	 <ul style="list-style-type: none"> ☞ Open and Closed Questions ☞ Circle Maps, Bubble Maps, Double Maps, Web Maps, Brainstorms, Spider Diagrams, ☞ Explosion Charts, T Charts, Think-Pair-Share, Y Charts, Bus Stops, ☞ Define Map, Relevant/Irrelevant ☞ KEYS: Alphabet Key, Variations, Picture, Brainstorming ☞ Surveys,
 Multistructural	Comprehension (Questions that ask for an understanding of the information)	<ul style="list-style-type: none"> • Examples given • Important details restated • Explanation of how something works • Understanding information • Grasp meaning • Translate knowledge into new context • Interpret facts, compare, contrast • Order, group, infer causes • Predict consequences 	summarize, describe, interpret, contrast, predict, associate, distinguish, estimate, differentiate, discuss, extend, scan, <u>why?</u>	ICTs: e.g. directories/ search engines, Google map; concept mapping; word processing; databases/ spread sheets; environmental probes Web 2.0 based: image storing, word processing, social bookmarking "to do" lists, notetaking, calendars, group mapping, aggregators, RSS feeds, blogs, wikis, forums, synchronous/synchronous communication, peer to peer networks, podcasting, SMS text, ism, email, fax, telephone, listservs, newsgroups
 Relational	Application (Questions use previously gained knowledge in new situations, applying rules and new theories)	<ul style="list-style-type: none"> • Most important details selected • Information organised • Show how something works • Make something work • Use information • Use methods, concepts, theories to new situations • Solve problems using required skills or knowledge 	apply, demonstrate, calculate, complete, illustrate, show, solve, examine, modify, relate, change, classify, experiment, discover	 <ul style="list-style-type: none"> ☞ Open and Closed Questions ☞ PMI, Cross Classification Charts, Pictographs, Tree Diagrams, Concept Map, Venn Diagrams, Double Bubble, SWOT Analysis, Bridge Maps, Continuum Line, Rating Ladder, Timeline, Flow Chart, Cycle Storyboard,

	<u>Analysis</u> (Questions that break an idea down into parts to clarify meaning)	<ul style="list-style-type: none"> • Connections made between this and other things, cause and effect • Parts of the whole are examined and put into correct groups • Seeing patterns • Organisation of parts • Recognition of hidden meanings • Identification of components 	analyse, separate, order, explain, connect, classify, arrange, divide, compare, select, explain, infer, reason, sequence, <u>how?</u>	Jigsaw, Brace Maps, ☞ Part/Whole Map, Cause and Effect Maps/Chains, Analogy Map ☞ KEYS: Reverse Listing, Disadvantages, BAR, Alphabet, Variations, Picture, Commonality, Question, Brainstorming ICTs: e.g. concept mapping, graphic organisers, simulations, domain specific modelling software; microworlds spreadsheets
 Extended Abstract	<u>Synthesis</u> (Questions that put together ideas in a new way. Creating a new product, or thinking in a new creative way)	<ul style="list-style-type: none"> • A better way of doing things • Something has been redesigned or blended together with the old and the new • A hypothesis or prediction has been made • Use old ideas to create new ones • Generalize from given facts • Relate knowledge from several areas • Predict, draw conclusions 	<u>combine</u> , integrate, modify, rearrange, substitute, plan, create, design, invent, what if? Compose, formulate, prepare, generalize, rewrite	 ☞ Open and Closed Questions ☞ PMIS, Fishbone Diagram, Relations Diagram, Algorithm, Flowscape, Scamper, Multiflow Maps, Tree Maps, Circle Maps, Double Bubble Maps, Webs, ☞ KEYS: What if? Combination, Prediction, Different Uses, Ridiculous, Inventions, Brick Wall, Construction, Forced Relationships, Alternative, Interpretation ☞ Reflective Journals ICTs: e.g. multimedia hypermedia authoring software, argument mapping software, PowerPoint, asynchronous/synchronous communication; Peer to peer networks, podcasting, SMS text, ism, email, fax, telephone, listservs, newsgroups, blogs, wikis
	<u>Evaluation</u> (Questions that encourage the value of ideas and products against set criteria)	<ul style="list-style-type: none"> • Pointing out strengths and weaknesses • Evaluating its clearness, accuracy, value • Convincing others of its value/worth • Compare and discriminate between ideas • Assess value of theories, presentations • Make choices based on reasoned argument • Verify value of evidence • Recognise subjectivity 	assess, decide, rank, grade, test, measure, recommend, convince, select, judge, explain, discriminate, forecast, imagine, support, conclude, compare, summarize, idealise, apply a principle, speculate, What if? Would? Could? Should? Can? I wonder...	

CONCEPT / CONTEXT / CURRICULUM PLANNING



CONCEPT: Sustainability

CONTEXT: Community / Ecology

CONCEPT: Discovery

CONTEXT: “OUR WORLD AND BEYOND”

SOLO TAXONOMY RUBRIC FOR TEACHERS AND STUDENTS

• Prestructural	I Unistructural	III Multistructural	 Relational	Extended Abstract 
Needs assistance	Definition identifies one relevant idea	Definition identifies several relevant ideas	Definition identifies several relevant ideas and links these to the whole	Definition identifies several relevant ideas and links these to the whole. Taken into another context.
<p>I know that:</p> <p>I have no understanding of the SOLO Taxonomy.</p>	<p>I know that:</p> <ul style="list-style-type: none"> •I have limited understanding of the SOLO Taxonomy. •I have limited understanding of the uses of the SOLO Taxonomy. •The SOLO Taxonomy is a tool for showing stages of learning. •I am not using the SOLO Taxonomy in my teaching/learning programmes. •The SOLO Taxonomy is based on observed evidence. 	<p>I know that:</p> <ul style="list-style-type: none"> •I am using the SOLO Taxonomy in my planning. •I am creating rubrics for learning with my students based on the SOLO Taxonomy. •I am using the SOLO Taxonomy with students to enable them to formatively assess themselves. •I am also using the SOLO Taxonomy for students' Summative assessment. 	<p>I know that:</p> <ul style="list-style-type: none"> •I am using the SOLO Taxonomy with students enabling them to articulate their level of learning and "where to next?" •I am using the SOLO Taxonomy to provide feedback to students and parents. •I am using the SOLO Taxonomy for students to see their progressions/connections in learning. 	<p>I know that:</p> <ul style="list-style-type: none"> •I am using the SOLO Taxonomy with students to identify the links for integrated learning. •I am using the SOLO Taxonomy to create targets/expectations across curriculum areas. •I am using the SOLO Taxonomies to communicate student achievement to other agencies. •I am using information gathered from SOLO Taxonomies to organize content into a coherent whole.

Resource Details

➤ SOLO

<http://www.learningandteaching.info/learning/solo.htm>

➤ Biggs, J.B. (1999). *Teaching for Quality Learning at University*. Buckingham: SRHE/Open University Press.

➤ Biggs, J.B., & Collis, K.F. (1982). *Evaluating the Quality of Learning: the SOLO taxonomy* New York: Academic Press.

👍 Barbara Wenn: bwenn19@gmail.com

👍 Heather Russell: heatherr@deanwell.school.nz

So.....

How will you use

SOLO?